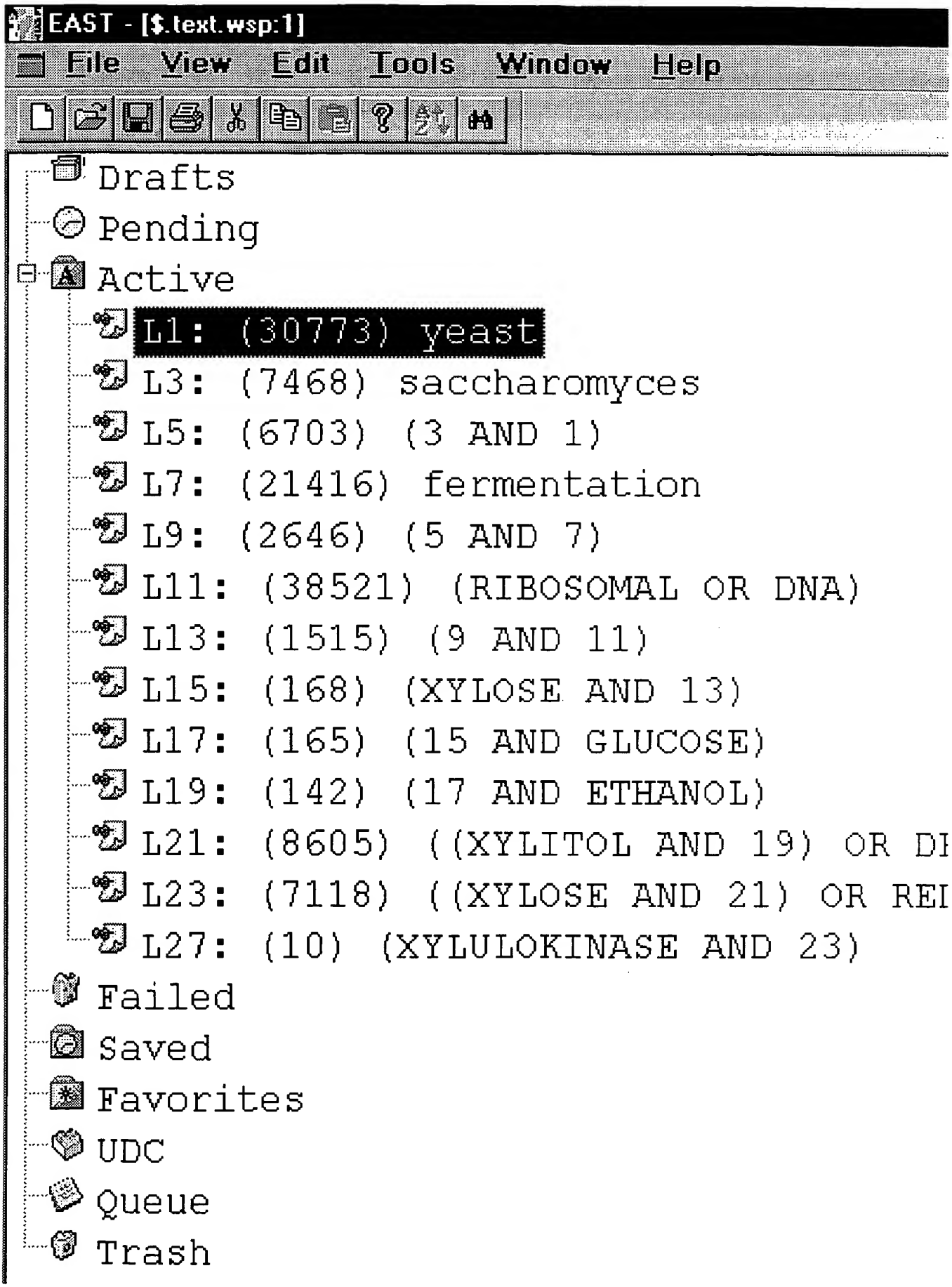
EAST - [$.text.wsp:1]
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Drafts
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Active
L1: (30773) yeast
L3: (7468) saccharomyces
L5: (6703) (3 AND 1)
L7: (21416) fermentation
L9: (2646) (5 AND 7)
L11: (38521) (RIBOSOMAL OR DNA)
L13: (1515) (9 AND 11)
L15: (168) (XYLOSE AND 13)
L17: (165) (15 AND GLUCOSE)
L19: (142) (17 AND ETHANOL)
L21: (8605) ((XYLITOL AND 19) OR DI
L23: (7118) ((XYLOSE AND 21) OR REI
L27: (10) (XYLULOKINASE AND 23)
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	U	1	Document ID	Issue Date	Pages
1	☒	☐	US 5866382 A	19990202	25
2	☒	☐	US 5843760 A	19981201	11
3	☒	☐	US 5798237 A	19980825	
4	☒	☐	US 5789210 A	19980804	
5	☒	☐	US 5726053 A	19980310	
6	☒	☐	US 5712133 A	19980127	
7	☒	☐	US 5631150 A	19970520	

	Title	Current OR	Current XRef
1	Xylose utilization by recombinant yeasts	435/158	435/155 ; 435/157
2	Single zymomonas mobilis strain for xylose and arabinose fermentation	435/252.3	435/161 ; 435/163 ; 435/165 ; 435/243 ; 435/320.1 ; 435/822 ; 536/23.2
3	Recombinant lactobacillus for fermentation of xylose to lactic acid and lactate	435/139	435/243 ; 435/248 ; 435/252.3 ; 435/252.9 ; 435/320.1
4	Recombinant yeasts for effective fermentation of glucose and xylose	435/163	435/254.2 ; 435/254.21 ; 435/320.1 ; 435/483 ; 536/23.2 ; 536/23.7 ; 536/23.74
5	Recombinant Zymomonas for pentose fermentation	435/252.3	435/161 ; 435/163 ; 435/165 ; 435/243 ; 435/320.1 ; 435/822 ; 536/23.2 ; 536/23.7
6	Pentose fermentation by recombinant zymomonas	435/161	435/163 ; 435/165 ; 435/252.3 ; 435/320.1
7	Manufacturing of xylitol using recombinant microbial hosts	435/105	435/254.11 ; 435/254.2

	Retrieval Classif	Inventor	S	C	P	2	3	4	5
1		Hallborn, Johan , et al.	☐	☐	☐	☐	☐	☐	☐
2		Zhang, Min , et al.	☐	☐	☐	☐	☐	☐	☐
3		Picataggio, Stephen K. , et al.	☐	☐	☐	☐	☐	☐	☐
4		Ho, Nancy W. Y. , et al.	☐	☐	☐	☐	☐	☐	☐
5		Picataggio, Stephen K. , et al.	☐	☐	☐	☐	☐	☐	☐
6		Picataggio, Stephen K. , et al.	☐	☐	☐	☐	☐	☐	☐
7		Harkki, Anu M. , et al.	☐	☐	☐	☐	☐	☐	☐

	U	1	Document ID	Issue Date	Pages
8	☒	☐	US 5514583 A	19960507	
9	☒	☐	US 5367056 A	19941122	
10	☒	☐	US 5272263 A	19931221	

	Title	Current OR	Current XRef
8	Recombinant zymomonas for pentose fermentation	435/252.3	435/161 ; 435/163 ; 435/165 ; 435/243 ; 435/320.1 ; 435/822 ; 536/23.2 ; 536/23.7
9	Endothelial cell-leukocyte adhesion molecules (ELAMs) and molecules involved in leukocyte adhesion (MILAs)	530/380	530/350
10	DNA sequences encoding vascular cell adhesion molecules (VCAMS)	536/23.5	435/320.1 ; 435/69.6 ; 530/380

	Retrieval Classif	Inventor	S	C	P	2	3	4	5
8		Picataggio, Stephen K. , et al.	☐	☐	☐	☐	☐	☐	☐
9		Hession, Catherine A. , et al.	☐	☐	☐	☐	☐	☐	☐
10		Hession, Catherine A. , et al.	☐	☐	☐	☐	☐	☐	☐

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NEWS	11	Mar 20	INPADOC: PRODUCER WARNING ABOUT DATA DELAYS
NEWS	12	Mar 22	NEW FEATURES IN INPADOC - RANGE SEARCHING AND NEW SDI/UPDATE SEARCH FIELD

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FILE 'HOME' ENTERED AT 09:11:58 ON 07 APR 2000

=> file biosis, medline, uspat, biotechds

	SINCE FILE ENTRY	TOTAL SESSION
COST IN U.S. DOLLARS		
FULL ESTIMATED COST	0.15	0.15

FILE 'BIOSIS' ENTERED AT 09:12:23 ON 07 APR 2000
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FILE 'MEDLINE' ENTERED AT 09:12:23 ON 07 APR 2000

FILE 'USPATFULL' ENTERED AT 09:12:23 ON 07 APR 2000
CA INDEXING COPYRIGHT (C) 2000 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'BIOTECHDS' ENTERED AT 09:12:23 ON 07 APR 2000
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=> s yeast

L1 204100 YEAST

=> s fermentation

L2 108917 FERMENTATION

=> s l1 and l2

L3 28374 L1 AND L2

=> s glucose

L4 505233 GLUCOSE

=> s xylose

L5 21876 XYLOSE

=> s l3 and l4

L6 14312 L3 AND L4

=> s l6 and l5

L7 3206 L6 AND L5

=> s saccharomyces

L8 120278 SACCHAROMYCES

=> s l8 and l7

L9 555 L8 AND L7

=> s xylitol dehdrogenase

L10 0 XYLITOL DEHDROGENASE

=> s xylose reductase

L11 308 XYLOSE REDUCTASE

=> s xylulokinase

L12 146 XYLULOKINASE

=> 's l9 and l11

'S IS NOT A RECOGNIZED COMMAND
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For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s l9 and l11

L13 37 L9 AND L11

=> s l13 and l12

L14 8 L13 AND L12

=> d his

(FILE 'HOME' ENTERED AT 09:11:58 ON 07 APR 2000)

FILE 'BIOSIS, MEDLINE, USPATFULL, BIOTECHDS' ENTERED AT 09:12:23 ON 07 APR 2000

L1 204100 S YEAST
L2 108917 S FERMENTATION
L3 28374 S L1 AND L2
L4 505233 S GLUCOSE
L5 21876 S XYLOSE
L6 14312 S L3 AND L4
L7 3206 S L6 AND L5
L8 120278 S SACCHAROMYCES
L9 555 S L8 AND L7
L10 0 S XYLITOL DEHDROGENASE
L11 308 S XYLOSE REDUCTASE
L12 146 S XYLULOKINASE
L13 37 S L9 AND L11
L14 8 S L13 AND L12

=> d l14 ti abs ibib tot

L14 ANSWER 1 OF 8 BIOSIS COPYRIGHT 2000 BIOSIS
TI Genetically engineered **Saccharomyces yeast** capable of effective cofermentation of **glucose** and **xylose**.
AB **Xylose** is one of the major fermentable sugars present in cellulosic biomass, second only to **glucose**. However, **Saccharomyces** spp., the best sugar-fermenting microorganisms, are not able to metabolize **xylose**. We developed recombinant plasmids that can transform **Saccharomyces** spp. into **xylose** -fermenting yeasts. These plasmids, designated pLNH31, -32, -33, and -34, are 2mum-based high-copy-number **yeast**-E. coli shuttle plasmids. In addition to the geneticin resistance and ampicillin resistance genes that serve as dominant selectable markers, these plasmids also contain three **xylose**-metabolizing genes, a **xylose** **reductase** gene, a xylitol dehydrogenase gene (both from Pichia stipitis), and a **xylulokinase** gene (from **Saccharomyces** cerevisiae). These **xylose**-metabolizing genes were also fused to signals controlling gene expression from S. cerevisiae glycolytic genes. Transformation of **Saccharomyces** sp. strain 1400 with each of these plasmids resulted in the conversion of strain 1400 from a non-**xylose**-metabolizing **yeast** to a **xylose** -metabolizing **yeast** that can effectively ferment **xylose** to ethanol and also effectively utilizes **xylose** for aerobic growth. Furthermore, the resulting recombinant yeasts also have additional extraordinary properties. For example, the synthesis of the **xylose** -metabolizing enzymes directed by the cloned genes in these recombinant yeasts does not require the presence of **xylose** for induction, nor is the synthesis repressed by the presence of **glucose** in the medium. These properties make the recombinant yeasts able to efficiently ferment **xylose** to ethanol and also able to efficiently coferment **glucose** and **xylose** present in the same medium to ethanol simultaneously.

ACCESSION NUMBER: 1998:257125 BIOSIS
DOCUMENT NUMBER: PREV199800257125
TITLE: Genetically engineered **Saccharomyces yeast** capable of effective cofermentation of **glucose** and **xylose**.
AUTHOR(S): Ho, Nancy W. Y. (1); Chen, Zhengdao; Brainard, Adam P.
CORPORATE SOURCE: (1) Lab. Renewable Resources Engineering, Purdue Univ., 1295 Potter Cent., West Lafayette, IN 47907-1295 USA
SOURCE: Applied and Environmental Microbiology, (May, 1998) Vol. 64, No. 5, pp. 1852-1859.
ISSN: 0099-2240.
DOCUMENT TYPE: Article
LANGUAGE: English

L14 ANSWER 2 OF 8 MEDLINE
TI Genetically engineered **Saccharomyces yeast** capable of effective cofermentation of **glucose** and **xylose**.
AB **Xylose** is one of the major fermentable sugars present in cellulosic biomass, second only to **glucose**. However, **Saccharomyces** spp., the best sugar-fermenting microorganisms, are not able to metabolize **xylose**. We developed recombinant plasmids that can transform **Saccharomyces** spp. into **xylose** -fermenting yeasts. These plasmids, designated pLNH31, -32, -33, and -34, are 2 microns-based high-copy-number **yeast**-E. coli shuttle plasmids. In addition to the geneticin resistance and ampicillin resistance genes that serve as dominant selectable markers, these plasmids also contain three **xylose**-metabolizing genes, a **xylose reductase** gene, a xylitol dehydrogenase gene (both from Pichia stipitis), and a **xylulokinase** gene (from **Saccharomyces** cerevisiae). These **xylose**-metabolizing genes were also fused to signals controlling gene expression from S. cerevisiae glycolytic genes. Transformation of **Saccharomyces** sp. strain 1400 with each of these plasmids resulted in the conversion of strain 1400 from a non-**xylose**-metabolizing **yeast** to a **xylose** -metabolizing **yeast** that can effectively ferment **xylose** to ethanol and also effectively utilizes **xylose** for aerobic growth. Furthermore, the resulting recombinant yeasts also have additional extraordinary properties. For example, the synthesis of the **xylose** -metabolizing enzymes directed by the cloned genes in these recombinant yeasts does not require the presence of **xylose** for induction, nor is the synthesis repressed by the presence of **glucose** in the medium. These properties make the recombinant yeasts able to efficiently ferment **xylose** to ethanol and also able to efficiently coferment **glucose** and **xylose** present in the same medium to ethanol simultaneously.
ACCESSION NUMBER: 1998247324 MEDLINE
DOCUMENT NUMBER: 98247324
TITLE: Genetically engineered **Saccharomyces yeast** capable of effective cofermentation of **glucose** and **xylose**.
AUTHOR: Ho N W; Chen Z; Brainard A P
CORPORATE SOURCE: Laboratory of Renewable Resources Engineering, Purdue University, West Lafayette, Indiana 47907-1295, USA.. nwyho@ecn.purdue.edu
SOURCE: APPLIED AND ENVIRONMENTAL MICROBIOLOGY, (1998 May) 64 (5) 1852-9.
Journal code: 6K6. ISSN: 0099-2240.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199807

ENTRY WEEK: 19980705

L14 ANSWER 3 OF 8 USPATFULL
TI **Xylose** utilization by recombinant yeasts
AB This invention relates to recombinant-DNA-technology. Specifically, this
invention relates to new recombinant **yeast** strains transformed with **xylose reductase** and/or xylitol dehydrogenase enzyme genes. A **yeast** strain transformed with the **xylose reductase** gene is capable of reducing **xylose** to xylitol and consequently of producing xylitol in vivo. If both of these genes are transformed into a **yeast** strain, the resultant strain is capable of producing ethanol on **xylose** containing medium during **fermentation**. Further, the said new **yeast** strains are capable of expressing the said two enzymes. **Xylose reductase** produced by these strains can be used in an enzymatic process for the production of xylitol in vitro.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	1999:15739 USPATFULL	
TITLE:	**Xylose** utilization by recombinant yeasts	
INVENTOR(S):	Hallborn, Johan, Lund, Sweden	
	Penttila, Merja, Helsinki, Finland	
	Ojamo, Heikki, Espoo, Finland	
	Walfridsson, Mats, Lund, Sweden	
	Airaksinen, Ulla, Vantaa, Finland	
	Keranen, Sirkka, Helsinki, Finland	
	Hahn-Hagerdal, Barbel, Lund, Sweden	
PATENT ASSIGNEE(S):	Xyrofin Oy, Helsinki, Finland (non-U.S. corporation)	
	NUMBER	DATE
PATENT INFORMATION:	US 5866382	19990202
APPLICATION INFO.:	US 1994-336198	19941103 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1992-848694, filed on 9 Mar	
	1992, now abandoned which is a continuation-in-part of Ser. No. US 1990-527775, filed on 24 May 1990, now abandoned	
	NUMBER	DATE
PRIORITY INFORMATION:	FI 1990-1771	19900406
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Chambers, Jasemine C.	
ASSISTANT EXAMINER:	Priebe, Scott D.	
LEGAL REPRESENTATIVE:	Birch, Stewart, Kolasch & Birch, LLP	
NUMBER OF CLAIMS:	15	
EXEMPLARY CLAIM:	1,9	
NUMBER OF DRAWINGS:	13 Drawing Figure(s); 9 Drawing Page(s)	
LINE COUNT:	1155	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L14 ANSWER 4 OF 8 USPATFULL
TI Recombinant yeasts for effective **fermentation** of **glucose** and **xylose**
AB Described are recombinant yeasts containing genes encoding **xylose reductase**, xylitol dehydrogenase and **xylulokinase**, and DNA molecules, vectors and methods useful for producing such yeasts. The recombinant yeasts effectively ferment **xylose** to ethanol, and preferred yeasts are capable of simultaneously fermenting **glucose** and **xylose** to ethanol thereby taking full advantage of these two sugar sources as they

are found in agricultural biomass.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 1998:91839 USPATFULL
TITLE: Recombinant yeasts for effective **fermentation** of **glucose** and **xylose**
INVENTOR(S): Ho, Nancy W. Y., West Lafayette, IN, United States
Tsao, George T., West Lafayette, IN, United States
PATENT ASSIGNEE(S): Purdue Research Foundation, West Lafayette, IN, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5789210	19980804
APPLICATION INFO.:	US 1993-148581	19931108 (8)

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Guzo, David
LEGAL REPRESENTATIVE: Woodard, Emhardt, Naughton Moriarty & McNett
NUMBER OF CLAIMS: 20
EXEMPLARY CLAIM: 13
NUMBER OF DRAWINGS: 18 Drawing Figure(s); 18 Drawing Page(s)
LINE COUNT: 1046
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L14 ANSWER 5 OF 8 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD
TI Enhanced cofermentation of **glucose** and **xylose** by recombinant **Saccharomyces yeast** strains in batch and continuous operating modes;
potential ethanol production by **Saccharomyces** diastaticus and **Saccharomyces** uvarum mutant expressing **xylose-reductase**, xylitol-dehydrogenase and **xylulokinase** genes (conference paper)
AN 1997-09140 BIOTECHDS
AB Recombinant **Saccharomyces** diastaticus x **Saccharomyces** uvarum strains 1400 carrying plasmid pLNH33, referred to as strain LNH33 (containing the **xylose-reductase**, xylitol-dehydrogenase and **xylulokinase** (EC-2.7.1.17) genes from Pichia stipitis, P. stipitis and **Saccharomyces** cerevisiae, respectively), and 1400 containing multiple copies of the **xylose** metabolizing genes **xylose-reductase**, xylitol-dehydrogenase and **xylulokinase** integrated into the chromosome and referred to as strain LNH-ST were used to ferment mixtures of pure sugars (**glucose** and **xylose**) and then pretreated corn biomass. LNH33 can ferment **xylose** to ethanol and coferment **glucose** and **xylose** to ethanol. LHN-ST is a more stable form of strain LNH33 which can coferment **glucose** and **xylose** with improved efficiencies. To assist in the scale-up of the process, the ethanol productivity of the strains were monitored in both batch culture and continuous culture operating modes and a comparison was made of the simultaneous saccharification and cofermentation performances at the bench and pilot scales. (17 ref)
ACCESSION NUMBER: 1997-09140 BIOTECHDS
TITLE: Enhanced cofermentation of **glucose** and **xylose** by recombinant **Saccharomyces yeast** strains in batch and continuous operating modes ;
potential ethanol production by **Saccharomyces** diastaticus and **Saccharomyces** uvarum mutant expressing **xylose-reductase**, xylitol-dehydrogenase and **xylulokinase** genes (conference paper)
AUTHOR: Toon S T; Philippidis G P; Ho N W Y; Chen Z D; Brainard A; Lumpkin R E; *Riley C J

CORPORATE SOURCE: Nat.Renewable-Energy-Lab.Colorado; Univ.Purdue; The[redacted]-Fibergen
LOCATION: Bio[redacted]hnology Center for Fuels and C[redacted]icals, National Renewable Energy Laboratory (NREL), 1617 Cole Boulevard, Golden, CO 80401, USA.
SOURCE: Appl.Biochem.Biotechnol.; (1997) 63-65, 243-55
CODEN: ABIBDL
ISSN: 0273-2289
Proceedings of the 18th Symposium in Biotechnology for Fuels and Chemicals, Gatlinburg, TN, 5-9 May, 1996.
DOCUMENT TYPE: Journal
LANGUAGE: English

L14 ANSWER 6 OF 8 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD
TI **Fermentation** of corn fiber sugars by an engineered **xylose** utilizing **Saccharomyces yeast** strain; **xylose-reductase**, xylitol-dehydrogenase and **xylulokinase** activity for ethanol production from sugar
AN 1997-08276 BIOTECHDS
AB The ability of a recombinant **Saccharomyces** sp. to ferment **glucose**, **xylose**, arabinose and galactose, which are the main monosaccharides found in corn fiber hydrolysates, was examined. **Saccharomyces** sp. 1400 (plasmid pLNH32) was genetically engineered to ferment **xylose** by expressing genes encoding a **xylose-reductase**, a xylitol-dehydrogenase and a **xylulokinase** (EC-2.7.1.17). Fermentations were carried out at 30 deg in YEP medium supplemented with appropriate sugars or corn fiber hydrolysate. The ability of the recombinant strain to produce ethanol in 500 ml flasks with a working volume of 100 ml was investigated. Aerobic, partially aerobic and semi-conditions were compared. **Glucose** and galactose were completely consumed within 12 hr regardless of aeration conditions. Under anaerobic conditions, maximum ethanol concentrations from **glucose** and galactose were 36.3 and 34.2 g/l respectively. The highest production of ethanol was achieved under anaerobic conditions with a mixture of **glucose** (80 g/l) and **xylose** (40 g/l), to give 52 g/l ethanol in less than 24 hr. (27 ref)
ACCESSION NUMBER: 1997-08276 BIOTECHDS
TITLE: **Fermentation** of corn fiber sugars by an engineered **xylose** utilizing **Saccharomyces yeast** strain; **xylose-reductase**, xylitol-dehydrogenase and **xylulokinase** activity for ethanol production from sugar
AUTHOR: Moniruzzaman M; Dien B S; Skory C D; Chen Z D; Hespell R B; Ho N W Y; Dale B E; *Bothast R J
CORPORATE SOURCE: Univ.Texas-A+M; USDA-ARS; Univ.Purdue
LOCATION: Fermentation Biochemistry Research Unit, National Cancer Center for Agricultural Utilization Research, USDA, ARS, 1815 North University Street, Peoria, IL 61604, USA.
SOURCE: World J.Microbiol.Biotechnol.; (1997) 13, 3, 341-46
CODEN: 9295H
ISSN: 0959-3993
DOCUMENT TYPE: Journal
LANGUAGE: English

L14 ANSWER 7 OF 8 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD
TI Comparison of recombinant **xylose**-fermenting **Saccharomyces** and natural **xylose**-fermenting yeasts in fermenting mixed sugars containing both **glucose** and **xylose**; Pichia stipitis **xylose-reductase** and

xylitol-dehydrogenase gene expression in **Saccharomyces** sp. for ethanol preparation (conference abstract)

AN 1995-14685 BIOTECHDS

AB Cellulosic biomass, which consists of high percentages of fermentable sugar molecules such as **glucose** and **xylose**, is an ideal renewable feedstock for the production of fuel ethanol. However, **Saccharomyces**, which is traditionally used by industry for fermenting **glucose** to ethanol, cannot ferment **xylose** to ethanol. Recombinant **Saccharomyces** sp. 1400 (harboring plasmid pLNH33) was previously constructed by cloning the **xylose -reductase** gene and the xylitol-dehydrogenase gene from Pichia stipitis into the **yeast** and by improving the **xylulokinase** (EC-2.7.1.17) activity of the host **yeast**. The resulting recombinant **yeast** fermented **xylose** very effectively to ethanol. Furthermore, it was also capable of fermenting both **glucose** and **xylose** simultaneously. The results of using this recombinant **yeast** in fermenting mixed sugars containing both **glucose** and **xylose** were compared with those obtained from using the natural **xylose**-fermenting yeasts, P. stipitis and Candida shehatae, in fermenting the same mixed sugars under identical conditions. (0 ref)

ACCESSION NUMBER: 1995-14685 BIOTECHDS

TITLE: Comparison of recombinant **xylose**-fermenting **Saccharomyces** and natural **xylose**-fermenting yeasts in fermenting mixed sugars containing both **glucose** and **xylose**; Pichia stipitis **xylose-reductase** and xylitol-dehydrogenase gene expression in **Saccharomyces** sp. for ethanol preparation (conference abstract)

AUTHOR: Ho N W Y; Chen Z; Brainard A

CORPORATE SOURCE: Univ.Purdue

LOCATION: Laboratory of Renewable Resource Engineering, Purdue University, West Lafayette, IN 47907-1295, USA.

SOURCE: Abstr.Pap.Am.Chem.Soc.; (1995) 209 Meet., Pt.2, BTEC116
CODEN: ACSRAL
ISSN: 0065-7727
209th ACS National Meeting, Anaheim, CA, 2-6 April, 1995.

DOCUMENT TYPE: Journal

LANGUAGE: English

L14 ANSWER 8 OF 8 BIOTECHDS COPYRIGHT 2000 DERWENT INFORMATION LTD

TI Recombinant yeasts for effective **fermentation** of **glucose** and **xylose**; ethanol producing using **Saccharomyces** transformed with genes encoding **xylose-reductase**, xylitol-dehydrogenase and **xylulokinase**

AN 1995-09112 BIOTECHDS

AB A recombinant **yeast** of the genus **Saccharomyces** is claimed containing introduced genes encoding **xylose-reductase**, xylitol-dehydrogenase and **xylulokinase** (EC-2.7.1.17), which is effective for fermenting **xylose** or **glucose** to ethanol. In the recombinant **yeast**, the genes are fused to non-**glucose**-inhibited promoters. The recombinant **yeast** is used for the simultaneous **fermentation** of **glucose** and **xylose** to ethanol. Also claimed are: a recombinant DNA molecule comprising genes encoding **xylose-reductase**, xylitol-dehydrogenase and **xylulokinase** fused to non-**glucose**-inhibited promoters; a vector effective for transforming **yeast** comprising genes encoding the enzymes; a method for obtaining the recombinant **yeast** by introducing DNA containing genes encoding the 3 enzymes into a **yeast**; and a method for the **fermentation** of **glucose** and **xylose** to ethanol. By fermenting

glucose and **xylose** simultaneously to ethanol, the recombinant yeasts take full advantage of these 2 sugars as they are found in agricultural biomass. (43pp)
ACCESSION NUMBER: 1995-09112 BIOTECHDS
TITLE: Recombinant yeasts for effective **fermentation** of **glucose** and **xylose**; ethanol producing using **Saccharomyces** transformed with genes encoding **xylose-reductase**, xylitol-dehydrogenase and **xylulokinase**
AUTHOR: Ho N W Y; Tsao G T
PATENT ASSIGNEE: Purdue-Res.Found.
PATENT INFO: WO 9513362 18 May 1995
APPLICATION INFO: WO 1994-US12861 8 Nov 1994
PRIORITY INFO: US 1993-148581 8 Nov 1993
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 1995-194082 [25]

=> s ribosomal DNA

L15 8787 RIBOSOMAL DNA

=> s chromosomal DNA

L16 14858 CHROMOSOMAL DNA

=> s (method and copy number)

L17 5891 (METHOD AND COPY NUMBER)

=> s l16 and l17

L18 1107 L16 AND L17

=> s l18 and integration

L19 563 L18 AND INTEGRATION

=> s l19 and plasmid

L20 555 L19 AND PLASMID

=> s l20 and progeny cells

L21 12 L20 AND PROGENY CELLS

=> d his

(FILE 'HOME' ENTERED AT 09:11:58 ON 07 APR 2000)

FILE 'BIOSIS, MEDLINE, USPATFULL, BIOTECHDS' ENTERED AT 09:12:23 ON 07 APR 2000

L1 204100 S YEAST
L2 108917 S FERMENTATION
L3 28374 S L1 AND L2
L4 505233 S GLUCOSE
L5 21876 S XYLOSE
L6 14312 S L3 AND L4
L7 3206 S L6 AND L5
L8 120278 S SACCHAROMYCES
L9 555 S L8 AND L7

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L10           0 S XYLITOL DEHDROGENASE
L11         308 S XYLOSE REDUCTASE
L12         146 S XYL[redacted]KINASE
L13          37 S L9 AND L11
L14           8 S L13 AND L12
L15        8787 S RIBOSOMAL DNA
L16       14858 S CHROMOSOMAL DNA
L17        5891 S (METHOD AND COPY NUMBER)
L18        1107 S L16 AND L17
L19         563 S L18 AND INTEGRATION
L20         555 S L19 AND PLASMID
L21          12 S L20 AND PROGENY CELLS

=> s l21 and l11

L22           0 L21 AND L11

=> s l21 and l12

L23           0 L21 AND L12

=> s l21 and yeast

L24          12 L21 AND YEAST

=> s l24 and xylose

L25           0 L24 AND XYLOSE

=> d l24 ti abs ibib tot


L24  ANSWER 1 OF 12  USPATFULL
TI     Vectors for gene transfer
AB     Improved recombinant retrotransposon vectors for gene transfer are
       disclosed. The synthetic vectors are truncated so as to reduce or
       altogether eliminate homologous recombination with retroviral helper
       sequences found in helper cells used to propagate the vectors, making
       them safer for use in humans and providing more space for therpeutic
       genes. The vectors transmit foreign DNA efficiently, are stable, enable
       abundant RNA expression from the retrotransposon transcriptional
       promoter, and through their diversity permit many useful applications
in
       therapeutics and transgenics. Methods are described for rescuing
       tissue-specific spromoters obtaining expression in primary cells,
       mapping the genome and other techniques of therapeutic and transgenic
       utility.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER:       2000:21216  USPATFULL
TITLE:                  Vectors for gene transfer
INVENTOR(S):            Hodgson, Clague P., Omaha, NE, United States
PATENT ASSIGNEE(S):     Nature Technology Corporation, Omaha, NE, United
States
                        (U.S. corporation)

                             NUMBER         DATE
                        --------------- --------
PATENT INFORMATION:     US 6027722      20000222
APPLICATION INFO.:      US 1994-213741  19940314  (8)
RELATED APPLN. INFO.:   Continuation-in-part of Ser. No. US 1994-194208, filed
                        on 7 Feb 1994, now abandoned which is a
                        continuation-in-part of Ser. No. US 1993-130638, filed
                        on 1 Oct 1993, now abandoned which is a
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continuation-in-part of Ser. No. US 1993-97721, filed on 26 Jul 1993, now abandoned which is a continuation-in-part of Ser. No. US 1993-60568, filed on 21 May 1993, now abandoned which is a continuation-in-part of Ser. No. US 1993-30766, filed on 12 Mar 1993, now abandoned which is a continuation-in-part of Ser. No. US 1992-968259, filed on 29 Oct 1992, now patented, Pat. No. US 5354674 which is a continuation-in-part of Ser. No. US 1990-603635, filed on 25 Oct 1990, now abandoned

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Priebe, Scott D.
ASSISTANT EXAMINER: Nguyen, Dave Trong
LEGAL REPRESENTATIVE: Schwegman, Lundberg, Woessner & Kluth
NUMBER OF CLAIMS: 38
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 32 Drawing Figure(s); 21 Drawing Page(s)
LINE COUNT: 2864
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 2 OF 12 USPATFULL
TI DNA encoding GM-CSF and a **method** of producing GM-CSF protein
AB A **method** for preparing and isolating a transformation vector containing CSF/cDNA is described. The **method** comprises:

preparing RNA from a cell that produces CSF;

preparing polyadenylated messenger RNA from said RNA;

preparing single stranded cDNA from said messenger RNA;

converting the single stranded cDNA to double stranded cDNA;

inserting the double stranded cDNA into transformation vectors and transforming bacteria with said vector to form colonies;

picking pools of 200 to 500 colonies each and isolating **plasmid** DNA from each pool;

transfecting the **plasmid** DNA into suitable host cells for expressing CSF protein;

culturing the transfected cells and assaying the supernatant for CSF activity; and

selecting CSF positive pools and screening the colonies used to make the pool to identify a colony having CSF activity. Also described are a cDNA coding for a protein having CSF activity (i.e. CSF/cDNA), a microorganism or cell line transformed with a recombinant vector containing such CSF/cDNA, and a **method** for producing CSF protein by expressing said CSF/cDNA by culturing a microorganism or cell line. The invention also provides a **method** of purifying the CSF proteins and the purified proteins so produced.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 1999:63236 USPATFULL
TITLE: DNA encoding GM-CSF and a **method** of producing GM-CSF protein
INVENTOR(S): Clark, Steven C., Winchester, MA, United States
Kaufman, Randal J., Boston, MA, United States

PATENT ASSIGNEE(S): Wong, Gordon G., Cambridge, MA, United States
Wang, Elizabeth A., Carlisle, MA, United States
Novartis Corporation, Basel, Switzerland (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5908763	19990601
APPLICATION INFO.:	US 1994-287019	19940808 (8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1993-43322, filed on 6 Apr 1993, now abandoned which is a continuation of Ser. No. US 1992-821668, filed on 16 Jan 1992, now abandoned which is a continuation of Ser. No. US 1990-479014, filed on 29 Jan 1990, now abandoned which is a continuation of Ser. No. US 1986-853807, filed on 5 Mar 1986, now abandoned which is a continuation of Ser. No. WO 1985-EP326, filed on 4 Jul 1985 which is a continuation-in-part of Ser. No. US 1984-652742, filed on 19 Sep 1984, now abandoned And Ser. No. US 1984-652447, filed on 19 Sep 1984, now abandoned which is a continuation of Ser. No. US 1984-628342, filed on 6 Jul 1984, now abandoned

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Mertz, Prema
LEGAL REPRESENTATIVE: Fitzpatrick, Cella, Harper & Scinto
NUMBER OF CLAIMS: 8
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 8 Drawing Figure(s); 8 Drawing Page(s)
LINE COUNT: 1918
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 3 OF 12 USPATFULL

TI Recombinant human granulocyte-macrophage-colony stimulating factor (GM-CSF)

AB A **method** for preparing and isolating a transformation vector containing CSF/cDNA is described. The **method** comprises:

preparing RNA from a cell that produces CSF;

preparing polyadenylated messenger RNA from said RNA;

preparing single stranded cDNA from said messenger RNA;

converting the single stranded cDNA to double stranded cDNA;

inserting the double stranded cDNA into transformation vectors and transforming bacteria with said vector to form colonies;

picking pools of 200 to 500 colonies each and isolating **plasmid** DNA from each pool;

transfecting the **plasmid** DNA into suitable host cells for expressing CSF protein;

culturing the transfected cells and assaying the supernatant for CSF activity; and

selecting CSF positive pools and screening the colonies used to make the pool to identify a colony having CSF activity. Also described are a cDNA

coding for a protein having CSF activity (i.e. CSF/cDNA), a microorganism or cell line transformed with a recombinant vector containing such CSF/cDNA, and a **method** for producing CSF protein by expressing said CSF/cDNA by culturing a microorganism or cell line. The invention also provides a **method** of purifying the CSF proteins and the purified proteins so produced.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	1999:43181 USPATFULL
TITLE:	Recombinant human granulocyte-macrophage-colony stimulating factor (GM-CSF)
INVENTOR(S):	Clark, Steven C., Winchester, MA, United States Kaufman, Randal J., Boston, MA, United States Wong, Gordon G., Cambridge, MA, United States Wang, Elizabeth A., Carlisle, MA, United States
PATENT ASSIGNEE(S):	The Novartis Corporation, Switzerland (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5891429	19990406
APPLICATION INFO.:	US 1995-466308	19950606 (8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1994-287019, filed on 8 Aug 1994 which is a continuation of Ser. No. US 1993-43322, filed on 6 Apr 1993, now abandoned which is a continuation of Ser. No. US 1992-821668, filed on 16 Jan 1992, now abandoned which is a continuation of Ser. No. US 1990-479014, filed on 29 Jan 1990, now abandoned which is a continuation of Ser. No. US 1986-853807, filed on 5 Mar 1986, now abandoned which is a continuation-in-part of Ser. No. US 1984-652742, filed on 19 Sep 1984, now abandoned And a continuation-in-part of Ser. No. US 1984-652447, filed on 19 Sep 1984, now abandoned which is a continuation-in-part of Ser. No. US 1984-628342, filed on 6 Jul 1984, now abandoned

DOCUMENT TYPE:	Utility
PRIMARY EXAMINER:	Mertz, Prema
LEGAL REPRESENTATIVE:	Fitzpatrick, Cella, Harper & Scinto
NUMBER OF CLAIMS:	9
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	8 Drawing Figure(s); 8 Drawing Page(s)
LINE COUNT:	1912

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 4 OF 12 USPATFULL

TI Transgenic non-human animals capable of producing heterologous antibodies of various isotypes

AB The invention relates to transgenic non-human animals capable of producing heterologous antibodies and transgenic non-human animals having inactivated endogenous immunoglobulin genes. In one aspect of the invention, endogenous immunoglobulin genes are suppressed by antisense polynucleotides and/or by antiserum directed against endogenous immunoglobulins. Heterologous antibodies are encoded by immunoglobulin genes not normally found in the genome of that species of non-human animal. In one aspect of the invention, one or more transgenes containing sequences of unrearranged heterologous human immunoglobulin heavy chains are introduced into a non-human animal thereby forming a

transgenic animal capable of functionally rearranging transgenic immunoglobulin sequences and producing a repertoire of antibodies of various isotypes encoded by human immunoglobulin genes. Such heterologous human antibodies are produced in B-cells which are thereafter immortalized, e.g., by fusing with an immortalizing cell line such as a myeloma or by manipulating such B-cells by other techniques to perpetuate a cell line capable of producing a monoclonal heterologous antibody. The invention also relates to heavy and light chain immunoglobulin transgenes for making such transgenic non-human animals as well as methods and vectors for disrupting endogenous immunoglobulin loci in the transgenic animal.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	1999:27848 USPATFULL
TITLE:	Transgenic non-human animals capable of producing heterologous antibodies of various isotypes
INVENTOR(S):	Lonberg, Nils, San Francisco, CA, United States Kay, Robert M., San Francisco, CA, United States
PATENT ASSIGNEE(S):	GenPharm International Inc., Palo Alto, CA, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5877397	19990302
APPLICATION INFO.:	US 1994-308865	19940919 (8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1993-145707, filed on 29 Oct 1993, now abandoned which is a division of Ser. No. US 1992-904068, filed on 23 Jun 1992 which is a continuation-in-part of Ser. No. US 1992-853408, filed on 18 Mar 1992 which is a continuation-in-part of Ser. No. US 1991-810279, filed on 17 Dec 1991, now patented, Pat. No. US 5569825 which is a continuation-in-part of Ser. No. US 1990-575962, filed on 31 Aug 1990, now abandoned which is a continuation-in-part of Ser. No. US 1990-574748, filed on 29 Aug 1990, now abandoned

DOCUMENT TYPE:	Utility
PRIMARY EXAMINER:	Ziska, Suzanne E.
LEGAL REPRESENTATIVE:	Townsend and Townsend and Crew LLP
NUMBER OF CLAIMS:	10
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	49 Drawing Figure(s); 38 Drawing Page(s)
LINE COUNT:	5232

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 5 OF 12 USPATFULL

TI Transgenic non-human animals for producing heterologous antibodies

AB The invention relates to transgenic non-human animals capable of producing heterologous antibodies and transgenic non-human animals having inactivated endogenous immunoglobulin genes. In one aspect of the invention, endogenous immunoglobulin genes are suppressed by antisense polynucleotides and/or by antiserum directed against endogenous immunoglobulins. Heterologous antibodies are encoded by immunoglobulin genes not normally found in the genome of that species of non-human animal. In one aspect of the invention, one or more transgenes containing sequences of unrearranged heterologous human immunoglobulin heavy chains are introduced into a non-human animal thereby forming a transgenic animal capable of functionally rearranging transgenic immunoglobulin sequences and producing a repertoire of antibodies of various isotypes encoded by human immunoglobulin genes. Such

heterologous human antibodies are produced in B-cells which are thereafter immortalized, e.g., by fusing with an immortalizing cell line such as a myeloma or by manipulating such B-cells by other techniques to perpetuate a cell line capable of producing a monoclonal heterologous antibody. The invention also relates to heavy and light chain immunoglobulin transgenes for making such transgenic non-human animals as well as methods and vectors for disrupting endogenous immunoglobulin loci in the transgenic animal.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	1998:118845 USPATFULL
TITLE:	Transgenic non-human animals for producing heterologous antibodies
INVENTOR(S):	Lonberg, Nils, San Francisco, CA, United States Kay, Robert M., San Francisco, CA, United States
PATENT ASSIGNEE(S):	GenPharm International Inc., Palo Alto, CA, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5814318	19980929
APPLICATION INFO.:	US 1993-96762	19930722 (8)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1993-53131, filed on 26 Apr 1993, now patented, Pat. No. US 5661016 which is a continuation-in-part of Ser. No. US 1992-990860, filed on 16 Dec 1992, now patented, Pat. No. US 5545806 which is a continuation-in-part of Ser. No. US 1992-904068, filed on 23 Jun 1992 which is a continuation-in-part of Ser. No. US 1992-853408, filed on 18 Mar 1992 which is a continuation-in-part of Ser. No. US 1991-810279, filed on 17 Dec 1991, now patented, Pat. No. US 5569825 which is a continuation-in-part of Ser. No. US 1990-575962, filed on 31 Aug 1990, now abandoned which is a continuation-in-part of Ser. No. US 1990-574748, filed on 29 Aug 1990, now abandoned	

DOCUMENT TYPE:	Utility
PRIMARY EXAMINER:	Ziska, Suzanne E.
LEGAL REPRESENTATIVE:	Townsend and Townsend and Crew LLP
NUMBER OF CLAIMS:	10
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	71 Drawing Figure(s); 63 Drawing Page(s)
LINE COUNT:	7909

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 6 OF 12 USPATFULL

TI Transgenic non-human animals for producing heterologous antibodies

AB The invention relates to transgenic non-human animals capable of producing heterologous antibodies and transgenic non-human animals having inactivated endogenous immunoglobulin genes. In one aspect of the invention, endogenous immunoglobulin genes are suppressed by antisense polynucleotides and/or by antiserum directed against endogenous immunoglobulins. Heterologous antibodies are encoded by immunoglobulin genes not normally found in the genome of that species of non-human animal. In one aspect of the invention, one or more transgenes containing sequences of unrearranged heterologous human immunoglobulin heavy chains are introduced into a non-human animal thereby forming a transgenic animal capable of functionally rearranging transgenic

immunoglobulin sequences and producing a repertoire of antibodies of various isotypes encoded by human immunoglobulin genes. Such heterologous human antibodies are produced in B cells which are thereafter immortalized, e.g., by fusing with an immortalizing cell line such as a myeloma or by manipulating such B-cells by other techniques to perpetuate a cell line capable of producing a monoclonal heterologous antibody. The invention also relates to heavy and light chain immunoglobulin transgenes for making such transgenic non-human animals as well as methods and vectors for disrupting endogenous immunoglobulin loci in the transgenic animal.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	1998:92262 USPATFULL
TITLE:	Transgenic non-human animals for producing heterologous antibodies
INVENTOR(S):	Lonberg, Nils, San Francisco, CA, United States Kay, Robert M., San Francisco, CA, United States
PATENT ASSIGNEE(S):	GenPharm International, Inc., Palo Alto, CA, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5789650	19980804
APPLICATION INFO.:	US 1992-853408	19920318 (7)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1992-834539, filed on 5 Feb 1992, now patented, Pat. No. US 5633425 which is a continuation-in-part of Ser. No. US 1991-810279, filed on 17 Dec 1991, now patented, Pat. No. US 5569825 which is a continuation-in-part of Ser. No. US 1990-575962, filed on 30 Sep 1990, now abandoned which is a continuation-in-part of Ser. No. US 1990-574748, filed on 29 Aug 1990, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	WO 1991-US6185	19910828

DOCUMENT TYPE:	Utility
PRIMARY EXAMINER:	Ziska, Suzanne E.
LEGAL REPRESENTATIVE:	Townsend and Townsend and Crew LLP
NUMBER OF CLAIMS:	5
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	41 Drawing Figure(s); 37 Drawing Page(s)
LINE COUNT:	5073

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 7 OF 12 USPATFULL

TI Transgenic non-human animals capable of producing heterologous antibodies

AB The invention relates to transgenic non-human animals capable of producing heterologous antibodies and methods for producing human sequence antibodies which bind to human antigens with substantial affinity.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	1998:72461 USPATFULL
TITLE:	Transgenic non-human animals capable of producing heterologous antibodies
INVENTOR(S):	Lonberg, Nils, Redwood City, CA, United States Kay, Robert M., San Francisco, CA, United States
PATENT ASSIGNEE(S):	GenPharm International, Inc., Palo Alto, CA, United

States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5770429	19980623
APPLICATION INFO.:	US 1995-544404	19951010 (8)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1994-352322, filed on 7 Dec 1994, now patented, Pat. No. US 5625126 which is a continuation-in-part of Ser. No. US 1994-209741, filed on 9 Mar 1994, now abandoned which is a continuation-in-part of Ser. No. US 1993-165699, filed on 10 Dec 1993, now abandoned which is a continuation-in-part of Ser. No. US 1993-161739, filed on 3 Dec 1993, now abandoned which is a continuation-in-part of Ser. No. US 1993-155301, filed on 15 Nov 1993, now abandoned which is a continuation-in-part of Ser. No. US 1993-96762, filed on 22 Jul 1993, now abandoned which is a continuation-in-part of Ser. No. US 1993-53131, filed on 26 Apr 1993, now patented, Pat. No. US 5661016

which

is a continuation-in-part of Ser. No. US 1992-990860, filed on 16 Dec 1992, now patented, Pat. No. US

5545806

which is a continuation-in-part of Ser. No. US 1992-904068, filed on 23 Jun 1992 which is a continuation-in-part of Ser. No. US 1992-853408, filed on 18 Mar 1992 which is a continuation-in-part of Ser. No. US 1991-810279, filed on 17 Dec 1991, now

patented,

Pat. No. US 5569825 which is a continuation-in-part of Ser. No. US 1990-575962, filed on 31 Aug 1990, now abandoned which is a continuation-in-part of Ser. No. US 1990-574748, filed on 29 Aug 1990, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	WO 1991-US6185	19910828
	WO 1992-US10983	19921217
	WO 1994-US4580	19940425

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Ziska, Suzanne E.
LEGAL REPRESENTATIVE: Townsend and Townsend and Crew LLP
NUMBER OF CLAIMS: 16
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 112 Drawing Figure(s); 93 Drawing Page(s)
LINE COUNT: 8550
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 8 OF 12 USPATFULL
TI Stable **integration** of DNA in bacterial genomes
AB A bacterial cell which in its genome carries an integrated non-replicative DNA construct comprising (1) a DNA sequence of interest,
(2) a DNA sequence which is homologous with a region of the genome of the cell, and (3) an origin of replication, the DNA construct lacking a functional gene coding for a factor required to initiate replication from the origin of replication.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 97:115141 USPATFULL
TITLE: Stable **integration** of DNA in bacterial genomes
INVENTOR(S): J.o slashed.rgensen, Steen Troels, Aller.o slashed.d,

Denmark
J.o slashed.rgensen, Per Lin.ar[redacted], Copenhagen, Denmark
Diderichsen, B.o slashed.rge K[redacted], Birker.o slashed.d, Denmark
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5695976	19971209
APPLICATION INFO.:	US 1995-441714	19950515 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1992-853701, filed on 26 May 1992, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1989-6396	19891218

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Degen, Nancy
LEGAL REPRESENTATIVE: Zelson, Steve T.; Agris, Cheryl H.
NUMBER OF CLAIMS: 49
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 35 Drawing Figure(s); 33 Drawing Page(s)
LINE COUNT: 1297
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 9 OF 12 USPATFULL
TI Transgenic non-human animals capable of producing heterologous antibodies of various isotypes
AB The invention relates to transgenic non-human animals capable of producing heterologous antibodies and transgenic non-human animals having inactivated endogenous immunoglobulin genes. In one aspect of the invention, endogenous immunoglobulin genes are suppressed by antisense polynucleotides and/or by antiserum directed against endogenous immunoglobulins. Heterologous antibodies are encoded by immunoglobulin genes not normally found in the genome of that species of non-human animal. In one aspect of the invention, one or more transgenes containing sequences of unrearranged heterologous human immunoglobulin heavy chains are introduced into a non-human animal thereby forming a transgenic animal capable of functionally rearranging transgenic immunoglobulin sequences and producing a repertoire of antibodies of various isotypes encoded by human immunoglobulin genes. Such heterologous human antibodies are produced in B-cells which are thereafter immortalized, e.g., by fusing with an immortalizing cell line such as a myeloma or by manipulating such B-cells by other techniques to perpetuate a cell line capable of producing a monoclonal heterologous antibody. The invention also relates to heavy and light chain immunoglobulin transgenes for making such transgenic non-human animals as well as methods and vectors for disrupting endogenous immunoglobulin loci in the transgenic animal.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 97:76001 USPATFULL
TITLE: Transgenic non-human animals capable of producing heterologous antibodies of various isotypes
INVENTOR(S): Lonberg, Nils, San Francisco, CA, United States
Kay, Robert M., San Francisco, CA, United States
PATENT ASSIGNEE(S): GenPharm International Inc., Palo Alto, CA, United States (U.S. corporation)

	NUMBER	DATE

	NUMBER	DATE
PATENT INFORMATION:	US 5661016	19970826
APPLICATION INFO.:	US 1993-53131	19930426 (8)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1992-990860, filed on 16 Dec 1992, now patented, Pat. No. US 5454806 which is a continuation-in-part of Ser. No. US 1992-904068, filed on 23 Jun 1992 which is a continuation-in-part of Ser. No. US 1992-853408, filed on 18 Mar 1992 which is a continuation-in-part of Ser. No. US 1992-834539, filed on 5 Feb 1992 which is a continuation-in-part of Ser. No. US 1991-810279, filed on 17 Dec 1991, now patented, Pat. No. US 5569825 which is a continuation-in-part of Ser. No. US 1990-575962, filed on 31 Aug 1990, now abandoned which is a continuation-in-part of Ser. No. US 1990-574748, filed on 29 Aug 1990, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	WO 1991-US9206185	19910828
	WO 1992-US10983	19921217

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Ziska, Suzanne E.
LEGAL REPRESENTATIVE: Townsend and Townsend and Crew LLP
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 57 Drawing Figure(s); 46 Drawing Page(s)
LINE COUNT: 5602
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 10 OF 12 USPATFULL
TI Transgenic non-human animals for producing heterologous antibodies
AB The invention relates to transgenic non-human animals capable of producing heterologous antibodies and methods for producing human sequence antibodies which bind to human antigens with substantial affinity.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 97:36385 USPATFULL
TITLE: Transgenic non-human animals for producing heterologous antibodies
INVENTOR(S): Lonberg, Nils, Redwood City, CA, United States
Kay, Robert M., San Francisco, CA, United States
PATENT ASSIGNEE(S): GenPharm International, Inc., Palo Alto, CA, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5625126	19970429
APPLICATION INFO.:	US 1994-352322	19941207 (8)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1994-209741, filed on 9 Mar 1994 which is a continuation-in-part of Ser. No. US 1993-165699, filed on 10 Dec 1993 which is a continuation-in-part of Ser. No. US 1993-161739, filed on 3 Dec 1993 which is a continuation-in-part of Ser. No. US 1993-155301, filed on 18 Nov 1993, now abandoned which is a continuation-in-part of Ser. No. US 1993-96762, filed on 22 Jul 1993 which is a continuation-in-part of Ser. No. US 1993-53131, filed on 26 Apr 1993 which is a continuation-in-part of Ser.

No. US 1992-990860, filed on 16 Dec 1992, now patented, Pat. No. US 5545806 which is a continuation-in-part of Ser. No. US 1992-904068, filed on 23 Jun 1992 which is a continuation-in-part of Ser. No. US 1992-853408, filed on 18 Mar 1992 which is a continuation-in-part of Ser. No. US 1992-834539, filed on 5 Feb 1992, now patented, Pat. No. US 5633425 which is a continuation-in-part of Ser. No. US 1991-810279, filed on 17 Dec 1991, now patented, Pat. No. US 5569825 which is a continuation-in-part of Ser. No. US 1990-575962, filed on 31 Aug 1990, now abandoned which is a continuation-in-part of Ser. No. US 1990-574748, filed on 29 Aug 1990, now abandoned

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Ziska, Suzanne E.
LEGAL REPRESENTATIVE: Townsend and Townsend and Crew LLP
NUMBER OF CLAIMS: 5
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 110 Drawing Figure(s); 89 Drawing Page(s)
LINE COUNT: 7534
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 11 OF 12 USPATFULL
TI Non-human animal having predefined allele of a cellular adhesion gene
AB A transgenic mouse which contains a predefined, specific and desired alteration in at least one of its two chromosomal alleles of a cellular adhesion gene, such that at least one of these alleles contains a mutation which alters the expression of the allele.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 97:12642 USPATFULL
TITLE: Non-human animal having predefined allele of a cellular adhesion gene
INVENTOR(S): Beaudet, Arthur L., Houston, TX, United States
Wilson, Raymond, Timonium, MD, United States
Bradley, Allan, Houston, TX, United States
O'Brien, William E., Houston, TX, United States
Sligh, James, Houston, TX, United States
Ballantyne, Christie, Houston, TX, United States
Bullard, Daniel, Houston, TX, United States
PATENT ASSIGNEE(S): Baylor College of Medicine, Houston, TX, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5602307	19970211
APPLICATION INFO.:	US 1994-309549	19940920 (8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1992-928010, filed on 12 Aug 1992, now abandoned
DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Chambers, Jasemine C.
LEGAL REPRESENTATIVE: Fulbright & Jaworski L.L.P.
NUMBER OF CLAIMS: 12
EXEMPLARY CLAIM: 1,7
NUMBER OF DRAWINGS: 12 Drawing Figure(s); 9 Drawing Page(s)
LINE COUNT: 2191
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L24 ANSWER 12 OF 12 USPATFULL
TI Ransgenic non-human animals for producing heterologous antibodies

AB The invention relates to transgenic non-human animals capable of producing heterologous antibodies and transgenic non-human animals having inactivated endogenous immunoglobulin genes. In one aspect of the invention, endogenous immunoglobulin genes are suppressed by antisense

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COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.15       0.15

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FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
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=> e lopes,I/au

```
E1            1     LOPES Z A/AU
E2            1     LOPES Z D O/AU
E3            0 --> LOPES,I/AU
E4            1     LOPET SEGURA FERNANDO/AU
E5            1     LOPETEGUI CAREAGA C/AU
E6            2     LOPETEGUI F/AU
E7            1     LOPETEGUI GRISELDA/AU
E8            1     LOPETEGUI M/AU
E9            1     LOPETEGUI N O/AU
E10           1     LOPETEGUI O/AU
E11           7     LOPETEGUI P/AU
E12           1     LOPETEGUI P H/AU
```

=> e steenhauer, j/au

```
E1            1     STEENHAUER S I/AU
E2            1     STEENHAUER SARI IRINA/AU
E3            0 --> STEENHAUER, J/AU
E4            7     STEENHAUT M/AU
E5            3     STEENHAUT O/AU
E6            1     STEENHIUS T/AU
E7            4     STEENHOEK A/AU
E8            1     STEENHOEK ADRI/AU
E9            1     STEENHOEK I/AU
E10           1     STEENHOEK L E/AU
E11          17     STEENHOF K/AU
E12          14     STEENHOF KAREN/AU
```

=> e verbakel/au

```
E1            1     VERBAEYS ANTONY/AU
E2            1     VERBAEYS ANTONY C R/AU
E3            0 --> VERBAKEL/AU
E4            1     VERBAKEL CAROLINE/AU
E5            2     VERBAKEL H/AU
E6            1     VERBAKEL H M/AU
E7            1     VERBAKEL HAROLD/AU
E8            1     VERBAKEL HENK/AU
E9            3     VERBAKEL HENK M/AU
E10           5     VERBAKEL J/AU
E11           1     VERBAKEL J M/AU
E12          11     VERBAKEL J M A/AU
```

=> log y

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COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                 ENTRY     SESSION
FULL ESTIMATED COST                               2.80        2.95
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